1. Identification

1.1. Product identifier

Trade name	Dynasylan® AMEO
Chemical Name	3-Aminopropyltriethoxysilane
CAS-No.	919-30-2

1.2. Recommended use of the chemical and restrictions on use

Relevant applications identified	For industrial use
Function	Coupling agent Crosslinking agents Surface modifier

1.3. Details of the supplier of the safety data sheet

Company	Evonik Corporation USA 299 Jefferson Road Parsippany,NJ 07054-0677 USA
Telephone	973-929-8000
Telefax	973-929-8040
Email address	Product-Regulatory-Services@Evonik.com

1.4. 24 HOUR EMERGENCY TELEPHONE NUMBERS:

CHEMTREC - US & CANADA:	800-424-9300
CHEMTREC MEXICO:	01-800-681-9531
CHEMTREC INTERNATIONAL:	+1 703-527-3887 **(collect calls accepted)**
Product Regulatory Services :	973-929-8060

2. Hazards identification

2.1. Classification of the substance or mixture

Classification according to Regulation 29CFR 1910.1200

Flammable liquids	Category 4	H227
Acute toxicity (Oral)	Category 4	H302
Skin corrosion	Category 1B	H314
Serious eye damage	Category 1	H318
Skin Sensitisation	Category 1	H317

2.2. Label elements

Statutory basis: Classification according to Regulation 29CFR 1910.1200

Symbol(s)	
Signal word	Danger
Hazard statement	H227 - Combustible liquid. H302 - Harmful if swallowed. H314 - Causes severe skin burns and eye damage. H317 - May cause an allergic skin reaction.
Precautionary statement: Prevention	P210 - Keep away from heat/sparks/open flames/hot surfaces. - No smoking. P260 - Do not breathe dust/ fume/ gas/ mist/ vapours/ spray. P264 - Wash skin thoroughly after handling. P270 - Do not eat, drink or smoke when using this product. P272 - Contaminated work clothing should not be allowed out of the workplace. P280 - Wear protective gloves/ protective clothing/ eye protection/ face protection. P370 + P378 - In case of fire: Use alcohol-resistant foam, carbon dioxide or dry sand to extinguish.
Precautionary statement: Reaction	P301 + P312 - IF SWALLOWED: Call a POISON CENTER or doctor/ physician if you feel unwell. P301 + P330 + P331 - IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. P303 + P361 + P353 - IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. P304 + P340 - IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P310 - Immediately call a POISON CENTER or doctor/ physician. P333 + P313 - If skin irritation or rash occurs: Get medical advice/ attention. P363 - Wash contaminated clothing before reuse. P370 + P378 - In case of fire: Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide to extinguish.
Precautionary statement: Storage	P403 + P235 - Store in a well-ventilated place. Keep cool. P405 - Store locked up.
Precautionary statement: Disposal	P501 - Dispose of contents/ container to an approved waste disposal plant.

2.3. Other hazards

3. Composition/information on ingredients

• 3-Aminopropyltriethoxysilane	99%	
CAS-No.	919-30-2	
Acute toxicity (Oral)		Category 4
Skin corrosion		Category 1B
Serious eye damage		Category 1
Skin Sensitisation		Category 1

Other information
This material is classified as hazardous under OSHA regulations.

4. First aid measures

4.1. Description of first aid measures

General advice
Remove contaminated or saturated clothing immediately and follow safe disposal procedures.

Inhalation
If aerosol or mists are formed, take affected persons out into the fresh air. Possible discomfort include severe irritation of mucous lining (nose, throat, eyes), cough, sneezing and flow of tears. Call a physician immediately.
If breathing difficulties occur:
Keep patient half sitting with upper body raised.

Skin contact
Immediately wash with soap and water for at least fifteen minutes. Remove contaminated clothing and shoes. Obtain medical attention. Thoroughly wash clothing and shoes before reuse.

Eye contact
Rinse eye thoroughly immediately with plenty of water for at least 10 minutes. Continue rinsing process with eye rinsing solution. Protect uninjured eye. For caustic burn of the eyes, call an ambulance and obtain immediate medical treatment from an ophthalmologist.

Ingestion
If accidentally swallowed, rinse mouth thoroughly with water and afterwards, drink plenty of water. In case of discomfort, obtain medical attention.

4.2. Most important symptoms and effects, both acute and delayed

Symptoms
None known

4.3. Indication of any immediate medical attention and special treatment needed

If substance has been swallowed, apply therapy for chemical burn. Early endoscopy is recommended in order to assess mucosa lesions in the esophagus and stomach which may appear. If necessary, suck away left over substances.

5. Fire-fighting measures

5.1. Extinguishing media

Suitable extinguishing media: Water spray, foam, CO2, dry powder.
Unsuitable extinguishing media: water

5.2. Special hazards arising from the substance or mixture

Hazardous fumes in fires, specific to the product:
nitrogen oxides (NOx)

5.3. Advice for firefighters

As in any fire, wear self-contained positive-pressure breathing apparatus, (MSHA/NIOSH approved or equivalent) and full protective gear.

6. Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Use personal protective equipment. Keep out unprotected persons. Ensure adequate ventilation.

6.2. Environmental precautions

Obey relevant local, state, provincial and federal laws and regulations. Do not contaminate any lakes, streams, rivers, groundwater or soil.

6.3. Methods and material for containment and cleaning up

Soak up with absorbent material, e.g., sand, silica gel, acid binder, universal binder or sawdust. Place in a marked, sealable container and dispose of in accordance with existing federal, provincial, state and local regulations.

7. Handling and storage

7.1. Precautions for safe handling

Provide good ventilation or extraction. Do not breathe vapours or spray mist. Wear personal protective equipment; see section 8.

7.2. Conditions for safe storage, including any incompatibilities

Advice on protection against fire and explosion

Normal measures for preventive fire protection.

When repairs of the production system are to be made (e.g. welding work), the section to be repaired must be essentially free of product.

Storage

Keep containers tightly closed in a cool, well-ventilated place. Protect from moisture.

Residual vapors might explode on ignition; do not apply heat, cut, drill, grind or weld on or near this container.

8. Exposure controls/personal protection

8.1. Control parameters

PNEC values

	STP
Value	13 mg/l

8.2. Exposure controls

Engineering measures

Provide for good ventilation if vapors/aerosols are formed.

Personal protective equipment

Respiratory protection

A respiratory protection program that meets OSHA 1910.134 and ANSI Z88.2 or applicable federal/provincial requirements must be followed whenever workplace conditions warrant respirator use. NIOSH's "Respirator Decision Logic" may be useful in determining the suitability of various types of respirators.

Hand protection

Glove material	for example, butyl-rubber
Material thickness	0.5 mm
Break through time	>= 480 min
Glove material	for example, Polyvinyl chloride (PVC)
Material thickness	0.5 mm
Break through time	>= 120 min
Method	Source: GESTIS substance database (hazardous substance information system of commercial professional associations)

The above mentioned hand protection is based on knowledge of the chemistry and anticipated uses of this product but it may not be appropriate for all workplaces. A hazard assessment should be conducted prior to use to ensure suitability of gloves for specific work environments and processes prior to use.
Selection of protective gloves to meet the requirements of specific workplaces.
Suitability for specific workplaces should be clarified with protective glove manufacturers.
Use impermeable gloves.

Eye protection
Use chemical splash goggles or face shield.

Skin and body protection
A safety shower and eye wash fountain should be readily available.
To identify additional Personal Protective Equipment (PPE) requirements, it is recommended that a hazard assessment in accordance with the OSHA PPE Standard (29CFR1910.132) be conducted before using this product.

Hygiene measures
Avoid contact with skin, eyes and clothing. Do not inhale vapors or aerosols. Do not eat, drink, or smoke when using the product. Remove contaminated or saturated clothing.

9. Physical and chemical properties

9.1. Information on basic physical and chemical properties

physical state	liquid (20 °C)	(1013 hPa)	
Colour	colorless to yellowish		
Form	liquid		
Odour	amine-like		
Odour Threshold	not determined		
pH	11.3	(500 g/l)	(20 °C)
Melting point/range	< -70 °C		
Boiling point/range	220 °C	(1013 hPa)	
	Method:	DIN 51 356	
Flash point	80 - 90 °C	(1013 hPa)	
	Method:	DIN EN ISO 2719 (Pensky-Martens, Closed Cup)	
Evaporation rate	not determined		
Flammability (solid, gas)	not determined		
Lower explosion limit	0.7 %(V)	(200 °C)	
	Method:	DIN EN 1839	
Upper explosion limit	17.5 %(V)	(200 °C)	
	Method:	DIN EN 1839	
Vapour pressure	2 Pa	(20 °C)	
Vapour density	not determined		
Density	0.95 g/cm3	(20 °C)	
	Method:	DIN 51757	

Water solubility	5.4 g/l	(20 °C)	
	Method:	QSAR	
	decomposition by hydrolysis		
Partition coefficient: n-octanol/water	log Pow:	1.7	(20 °C)
	Method:	QSAR	
Autoignition temperature	300 °C		
Thermal decomposition	> 217 °C		
Viscosity, dynamic	2 mPa.s	(20 °C)	
	Method:	DIN 53 015	

9.2. Other information

Metal corrosion: Not to be expected.

10. Stability and reactivity

10.1. Reactivity

No dangerous reaction known under conditions of normal use.

10.2. Chemical stability

Stable under recommended storage conditions.

10.3. Possibility of hazardous reactions

Possibility of hazardous reactions: Exothermic reaction with:
water
Organic acids
inorganic acids

10.4. Conditions to avoid

Keep away from heat and sources of ignition.
Protect from moisture.
In the presence of oxygen and heat, the ethanol forming during the reaction may produce acetaldehyde.
Material may form acetaldehyde when heated with inorganic pigments in the presence of air.

10.5. Incompatible materials

water, strong oxidant, acids.

10.6. Hazardous decomposition products

Ethanol in case of hydrolysis

11. Toxicological information

11.1. Information on toxicological effects

Acute oral toxicity	LD50 Rat(female):	1490 mg/kg
	Method:	EPA Methode
Acute inhalation toxicity	LC50 Rat(female):	> 144 mg/l / 6 h / vapour

	Method: OECD Test Guideline 403 Assessment: The substance or mixture has no acute inhalation toxicity
Acute dermal toxicity	LD50 Rabbit: > 2000 mg/kg Method: EPA Methode Assessment: The substance or mixture has no acute dermal toxicity
Skin irritation	Rabbit Causes burns. Method: OECD Test Guideline 404
Eye irritation	Rabbit Risk of serious damage to eyes. Method: OECD Test Guideline 405
Sensitization	Buehler Test Guinea pig: May cause sensitisation by skin contact. Method: OECD Test Guideline 406
Repeated dose toxicity	Oral Rat / 90-day NOAEL: 200 mg/kg Method: OECD TG 408
Assessment of STOT single exposure	Assessment: The substance or mixture is not classified as specific target organ toxicant, single exposure.
Assessment of STOT repeat exposure	Assessment: The substance or mixture is not classified as specific target organ toxicant, repeated exposure.
Risk of aspiration toxicity	No aspiration toxicity classification
Genotoxicity in vitro	not mutagenic
Carcinogenicity	No evidence that cancer may be caused.
Toxicity to reproduction	Animal testing did not show any effects on fertility.

12. Ecological information

12.1. Toxicity

Toxicity to fish	LC0 Brachydanio rerio: > 934 mg/l / 96 h Method: OECD TG 203
Toxicity in aquatic invertebrates	EC50 Daphnia magna: 331 mg/l / 48 h Method: OECD TG 202
Toxicity to algae	EC50 Desmodesmus subspicatus (green algae): > 1000 mg/l / 72 h Method: OECD TG 201 NOEC Desmodesmus subspicatus (green algae): 1.3 mg/l / 72 h Method: OECD TG 201
Toxicity to bacteria	EC 10 Pseudomonas putida: 13 mg/l / 5.75 h Method: Bringmann und Kühn, Z. Wasser Abwasser Forsch. 10, 87-98

(1977)

12.2. Persistence and degradability

Biodegradability
Exposure time: 28 d
Result: 67 % Not readily biodegradable.
Method: (DOC; Die Away test - 79/831/EEC part C.4-A)

Physico-chemical removability
half-life period: 8.5 hrs
Method: OECD Test Guideline 111
Hydrolysis, abiotic decomposition

12.3. Bioaccumulative potential

Bioaccumulation
not bioaccumulative
log Pow: see chapter 9

12.4. Mobility in soil

Mobility
Adsorption on the floor: low.

12.5. Other adverse effects

Further Information
The data we have at our disposal do not necessitate identification concerning environmental hazard.

13. Disposal considerations

13.1. Waste treatment methods

Product

Waste must be disposed of in accordance with federal, state and local regulations. Incineration is the preferred method. Empty containers must be handled with care due to product residue. DO NOT HEAT OR CUT THE EMPTY CONTAINER WITH ELECTRIC OR GAS TORCH.

Uncleaned packaging

Do not reuse empty containers and dispose of in accordance with the regulations issued by the appropriate local authorities.
If there is product residue in the emptied container, follow directions for handling on the container's label.
Incorrect disposal or reuse of this container is illegal and can be dangerous.
Other countries: observe the national regulations.

14. Transport information

D.O.T. Road/Rail

14.1.	UN number:	UN 3267
14.2.	UN proper shipping name:	CORROSIVE LIQUID, BASIC, ORGANIC, N.O.S.(3-aminopropyl-triethoxysilane)
14.3.	Transport hazard class(es):	8

14.4.	Packing group:	II
14.5.	Environmental hazards (Marine pollutant):	–
14.6.	Special precautions for user:	No

Air transport ICAO-TI/IATA-DGR

14.1.	UN number:	UN 3267
14.2.	UN proper shipping name:	Corrosive liquid, basic, organic, n.o.s.(3-aminopropyl-triethoxysilane)
14.3.	Transport hazard class(es):	8
14.4.	Packing group:	II
14.5.	Environmental hazards:	–
14.6.	Special precautions for user:	Yes
	IATA-C: ERG-Code 8L	
	IATA-P: ERG-Code 8L	

Sea transport IMDG-Code/GGVSee (Germany)

14.1.	UN number:	UN 3267
14.2.	UN proper shipping name:	CORROSIVE LIQUID, BASIC, ORGANIC, N.O.S.(3-aminopropyl-triethoxysilane)
14.3.	Transport hazard class(es):	8
14.4.	Packing group:	II
14.5.	Environmental hazards (Marine pollutant):	–
14.6.	Special precautions for user:	Yes
	EmS:	F-A,S-B
	Clear of living quarters.	
	Keep separate from acids.	

14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code:
for transportapproval see regulatory information

15. Regulatory information

US Federal Regulations

OSHA

If listed below, chemical specific standards apply to the product or components:

- None listed

Clean Air Act Section (112)

If listed below, components present at or above the de minimus level are hazardous air pollutants:

- None listed

CERCLA Reportable Quantities

If listed below, a reportable quantity (RQ) applies to the product based on the percent of the named component:

- None listed

SARA Title III Section 311/312 Hazard Categories
The product meets the criteria only for the listed hazard classes:

- Acute Health Hazard
- Fire Hazard

SARA Title III Section 313 Reportable Substances
If listed below, components are subject to the reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372:

- None listed

Toxic Substances Control Act (TSCA)
If listed below, non-proprietary substances are subject to export notification under Section 12 (b) of TSCA:

- None listed

State Regulations

The Listing requirements of the Right to Know (RTK) legislation varies by state. All information for NJ, PA, MA and other states can be derived from the listing of hazardous and non-hazardous components in section 2 and 15 of this MSDS.

California Proposition 65

A warning under the California Drinking Water Act is required only if listed below:

- None listed

An employer using HMIS/NFPA labeling must through training ensure that its employees are fully aware of the hazards of the chemicals used.

HMIS Ratings

Health :	3
Flammability :	2
Physical Hazard :	1

NFPA Ratings

Health :	3
Flammability :	2
Reactivity :	1

16. Other information

Further information

Revision date 04/01/2015

Changes since the last version are highlighted in the margin. This version replaces all previous versions.

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Legend

ACC	American Chemistry Council
ACGIH	American Conference of Governmental Industrial Hygenists
ACS	Advisory Committee on Sustainability
ADI	Acceptable Daily Intake
ASTM	American Society for Testing and Materials
ATP	Adaptation to Technical Progress
BCF	Bioconcentration factor
BOD	Biochemical oxygen demand
c.c.	closed cup
CAO	Cargo Aircraft Only
Carc	Carcinogen
CAS	Chemical Abstract Services
CDN	Canada
CEPA	Canadian Environmental Protection Act
CERCLA	Comprehensive Environmental Response – Compensation and Liability Act
CFR	Code of Federal Regulations
CMR	carcinogenic-mutagenic-toxic for reproduction
COD	Chemical oxygen demand
DIN	German Institute for Standardization
DMEL	Derived minimum effect level
DNEL	Derived no effect level
DOT	Department of Transportation
EC50	half maximal effective concentration
EPA	Environmental Protection Agency
ErC50	Reduction of Growth Rate
ERG	Emergency Response Guide Book
FDA	Food and Drug Administration
GHS	Globally Harmonized System of Classification and Labelling of Chemicals (GHS)
GLP	Good Laboratory Practice
GMO	Genetic Modified Organism
HCS	Hazard Communication Standard
HMIS	Hazardous Materials Identification System
IARC	International Agency for Research on Cancer
IATA	International Air Transport Association
IBC	Intermediate Bulk Container
ICAO-TI	International Civil Aviation Organization- Technical Instructions
ICCA	International Council of Chemical Association
ID	Identification number
IMDG	International Maritime Dangerous Goods
IUPAC	International Union of Pure and Applied Chemistry
ISO	International Organization For Standardization
LC50	50 % Lethal Concentration
LD50	50 % Lethal Dose
L(E)C50	LC50 or EC50
LOAEL	Lowest observed adverse effect level
LOEL	Lowest observed effect level
MARPOL	International Convention for the Prevention of Pollution from Ships
NFPA	National Fire Protection Association
NOAEL	No observed adverse effect level
NOEC	no observed effect concentration
NOEL	no observed effect level
o. c.	open cup
OECD	Organisation for Economic Cooperation and Development
OEL	Occupational Exposure Limit
OSHA	Occupational Safety and Health Administration
PBT	Persistent, bioaccumulative, toxic
PEC	Predicted effect concentration
PNEC	Predicted no effect concentration
RQ	Reportable Quantity
SDS	Safety Data Sheet
STOT	Specific Target Organ Toxicity
UN	United Nations
vPvB	very persistent, very bioaccumulative

VOC	volatile organic compounds
WHMIS	Workplace Hazardous Materials Information System
WHO	World Health Organization